

PROTECT YOUR EMPLOYEES WITH THE SAFEST, CLEANEST VCI AND MOST EFFECTIVE PRODUCTS ON THE MARKET

Carcinogens found in Early VCI Configurations Dicyclohexylammonium Nitrite (DICHAN)

VCI (Vapor Corrosion Inhibitor) technology has been in use since the 1940's when Shell Oil Company developed and patented a new chemical called DICHAN (Dicyclohexylammonium Nitrite). By emitting corrosion inhibiting molecules VCI technology allowed manufacturing companies to eliminate the use of messy petroleum-based oils or greases. After the Second World War DICHAN products were mainly used to protect U.S. military equipment.

In the 1950's and 1960's, health and safety concerns began to arise from the use of DICHAN. In the 1970's, DICHAN was determined to be carcinogenic, which led to the use of DICHAN being banned from all but a few specialty applications. Although, many VCI companies today still use similar chemistry in their VCI products.

Sodium Nitrite & Amines Found to be Carcinogenic

After DICHAN was discontinued, VCI companies searched for a safer, yet still effective alternative. Sodium nitrite and secondary amines were introduced as a replacement for DICHAN. Although further research showed that both nitrites and amines also can be hazardous to humans. When used in packaging, amines and nitrites can combine to form nitrosamines. Nitrosamines are known carcinogens, and when inhaled can cause cancers of the liver, bladder, and stomach. Most VCI companies still use this technology today, even though these chemicals are banned in many countries.

Rust Guard Premium™ VCI products from Green Packaging, Inc. are Amine-free, Nitrite-free, Heavy Metal-free

Rust Guard Premium™ VCI products from Green Packaging, Inc. are Amine-free, Nitrite-free, Heavy Metal-free, and contain no Volatile Organic Compounds (VOC)s. In addition to being the safest VCI products on the market.

SODIUM NITRITE-BASED VCI

- ✘ Not effective on copper, brass, bronze, and other copper alloys. Sodium nitrite can attack and discolor copper and copper alloys.
- ✘ Has very low vapor pressure and is not effective in packaging where most of the parts are not touching the bag.
- ✘ Can combine with amines to form nitrosamines which are known carcinogens.

RUST GUARD PREMIUM™ VCI

- ✔ Proven to protect all ferrous and non-ferrous metals, including steel, iron, copper, aluminum, and zinc.
- ✔ Has higher vapor pressure and the highest level of VCI chemistry in the industry which will protect much larger areas more effectively, providing better and longer-lasting protection.
- ✔ Is so safe, it is FDA compliant for use with food processing equipment and requires no special handling for disposal or recycling.

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